



THE LEMPSTER OWL

HOW GREEN
IS MY TOWN
2009
NO. 26

THE CRAGIN BARN GOAT STORY

By Horace Cragin

This story does not begin with "ONCE UPON A TIME," for at least two reasons. Number One: The Grimm Brothers of fairy tale fame have absolutely no claim to it. Number Two: This story is based on a true actual happening, therefore it is not, was not, and never will be a fairy tale.

This event took place somewhere in the time period of August 1948 through August 1952. It was early afternoon on one of the hottest and most humid August days you ever saw. The heat was broiling hot! The humidity was unbearable! (If you keep the day's conditions in mind, it might enhance the flavor and aroma in the story.)

(continued on page 5)



INSIDE THIS ISSUE

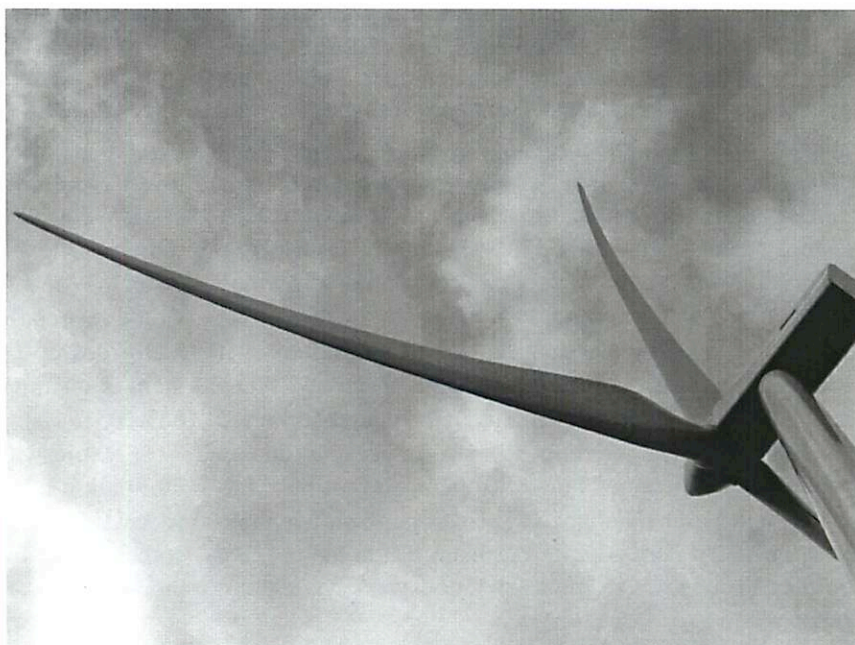
Green gem on our mountains.....	3
Natasha Heath finds town past.....	6
Pat McCabe travels with her great-grandmother.....	9
Roger and Maddie Ferland.....	14
Community News.....	16

BUILDING THE WIND FARM

The Owl Staff

November 10, 2008 was the big day the windmills went on line. It had taken just under a year for Iberdrola, the Spanish wind energy company, to construct the twelve turbines that are now the talk of the town.

If you saw the humongous trucks hauling turbine sections on Route 10 last summer, or the cranes hoisting pieces on the mountaintop like some kind of surreal Erector Set, you had a glimpse of how it happened.



Ed Cherian, construction manager for the project, kindly gave *The Owl* a whirlwind chronology of the amazing feat to put it all together. Ed also gave us a tour and helped clarify details for this story. Meanwhile, David Diehl has been skulking around town grabbing photos of the construction. Here, then, is the story of the Lempster Wind Farm in words and photos. We hope you enjoy it.

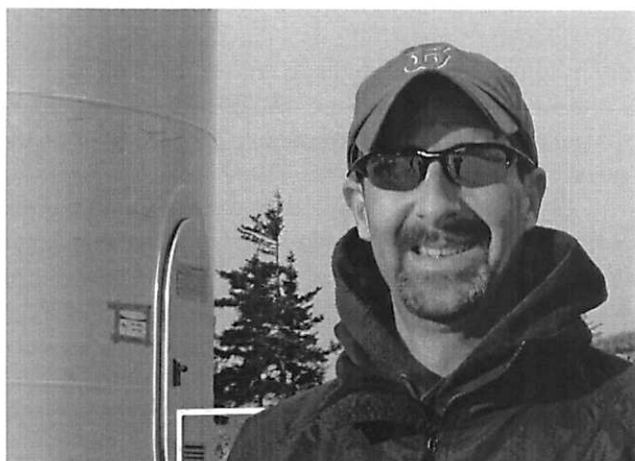
Christmas, 2007: Logging begins. Through the winter of 2008, crews worked on the building the roads and the crane pads around each turbine, as well as installing the foundations.

(continued on page 10)

(continued from page 1)

Building the Wind Farm

Ed masterminded the logistics of getting all the huge pieces to Lempster from suppliers around the world—by boat, train, and truck. The tricky part (well, there were many tricky parts actually) was to make sure that the



Ed Cherian, on his last day as construction manager, offers a tour to Owl people

pieces arrived in the right order, the order in which they would have to be erected.

Each turbine tower consists of four sections. Each section is a different size and weight. The bottom one, naturally, had better go in first. And so on. There wasn't enough room on the site to store 100-foot long pieces of bric-a-brac, so you see why planning was critical.

The tower sections were built in Spain and came by ship to Portland, Maine. Why not Portsmouth, our home



A privileged close-up of one the heavy-lift cranes

port, you ask? Because the port isn't deep enough to accommodate the ships carrying the turbine parts. From



One of the first tower concrete bases to be poured, showing the huge number of anchor bolts required. The double ring inside holds down tower bottom section

Portland, the pieces came to Lempster by truck. (If you've driven the east-west roads across New Hampshire and Maine, you have an idea why the mega-trucks needed to stay on the north-south highways as much as possible.)

The nacelles—that's the brains and the guts—those rectangular boxes that house the gears, the generators, and the all important computer chips—they came from Pennsylvania. Ten of them came by train to Claremont. The other two and all the blades came by truck. It took three different trucking companies to do the job, and some used routes through Vermont instead of Massachusetts. It's enough to give most people a colossal headache, but Ed had it all figured out. He has books of documents for every last piece of steel, concrete, and whatchamacallit.

Ed told us that you don't just put huge hunks of metal on truck and tell the driver to head for Lempster. You have to get permits. Ah, permits and more permits. Getting the permits through Pennsylvania and Massachusetts was the hardest.

Deliveries began in earnest in August, and the cranes worked from then through October to raise the turbines. All told, there were five cranes on site. The main crane was the only one large enough to hoist the nacelles and



Traffic jam in East Lempster, as nacelle readies for turn onto Mountain Road, on way to a turbine site

the top two tower sections. Because the big crane was rented and due at another wind farm in South Dakota in October, the company was under pressure to keep the



Two of first tower sections to enter Lempster await instructions at Jolly Farmer parking lot.

construction running as fast as possible.

But sometimes the wind slowed things down. "The irony is that you can't build a wind project when it's too windy," Ed joked, because you can't use the cranes to lift heavy objects when the wind is above a certain speed. That explains why the crew sometimes worked at night, after the strong winds had died down.

The first turbines started producing electricity in October, and on November 10th, somebody flipped a switch (or so we imagine), and the Lempster Wind Farm was officially in operation. Since then, the wind turbines are in a year-long shake down period. You might have no-



A single 100 foot blade approaches Lempster on Route 10, under trooper escort

ticed that in the first couple of months, several turbines were not turning at any one time, and turbines might go on and off rapidly. The turbines and their computers have to "learn" all about seasonal, daily, and hourly changes in wind speed and direction, turbulence, and humidity. They learn by being programmed to shut down whenever anything is amiss. During this first year, humans study the data and reprogram the computers.

Here's the another irony: Wind turbines depend on wind to produce energy, but they can't operate when the wind gets too strong. Their preferred optimum wind speed is 12 or 13 meters per second (26-29 mph), but they can

operate at wind speeds of 4 to 25 meters per second (9-56 mph). When wind goes above 12 meters per second, the computer turns the blades to "let some of the wind spill," rather like letting out the sails in a sailboat. Anything higher than 25 meters per second and the turbine shuts down.

We were seeing a lot of shut-downs in November

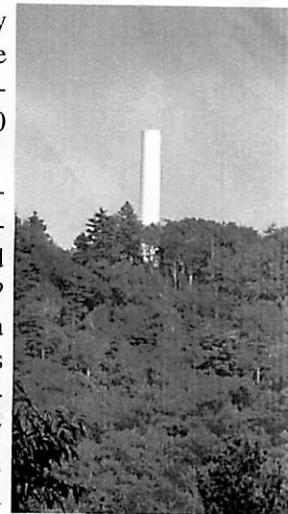


Monster pusher needed to get a nacelle up the mountain

and December. Ed told us that the central control computer receives many minor messages constantly. If it misses even one or two data points in a second, it declares a "fault" and shuts down the turbine. But all this is part of the learning curve. Through this feedback, the computer eventually learns how to optimize the turbine operations with very little human intervention.

As something of a good omen, during the first week of operation there were two days that the wind held steady at 12 meters per second. The plant ran at 92 percent of capacity, enough to power 25,000 homes.

Can we brag to our families and friends that we are getting our electricity from wind turbines on our own mountains? Well, sort of, but it's a bit of a story. Those graceful blades aren't spinning just to look beautiful and help us meditate. They are producing electrons, which somebody is collecting and sending to our houses to turn on our lights and toast our bread.

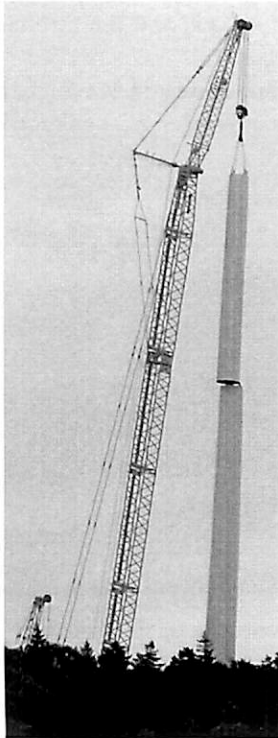


Our first "missile" launch

(continued on page 12)

(continued from page 11)

Building the Wind Farm



Top tower section positioning

(We know, some of us never got the electron part of 8th grade electricity either, but think of it as popcorn and you'll get a pretty good picture.)

Iberdrola sells all of the electrons it collects in Lempster to Public Service of New Hampshire (PSNH). The electrons travel through the new lines built last fall along Route 10, to a PSNH switching station in Newport. Now, as you know, PSNH doesn't serve Lempster and never did, because remote, sparsely populated towns like ours aren't profitable. We get our electric power from the New Hampshire Electric Co-op, a sort of mutual aid, non profit, which, as it happens got its start right here in Lempster and rewarded us with its first electric pole. (You can go hug that pole on Allen

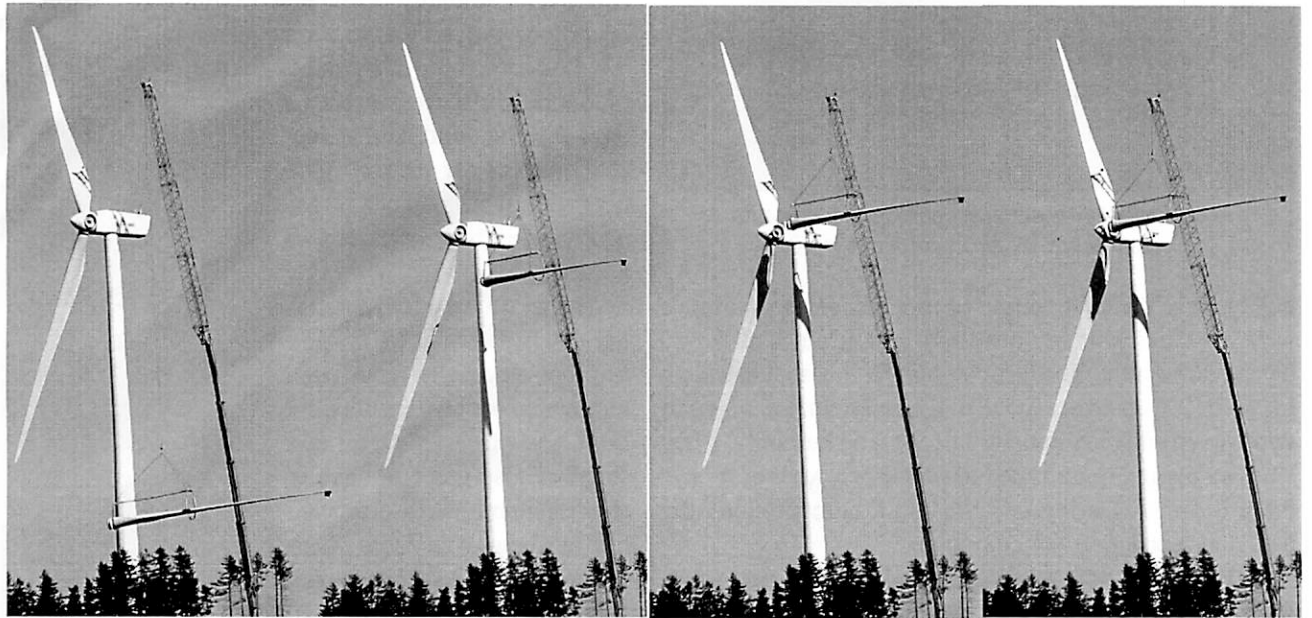
Road, just down from Lempster Street, but you won't get any popcorn from it.)

Now here's the punch line. PSNH sells ten percent of its homemade Lempster electrons to the Co-op. The Co-op and PSNH get their total supply of electrons from all kinds of sources—a coal plant in Bow, small hydroelectric plants, the Seabrook nuclear utility, and even a converted coal plant in Portsmouth that now burns wood chips. All these sources of electrons are pooled together. None of us will ever know, when we turn on a light, where the particular electrons that power it at that moment originally came from.

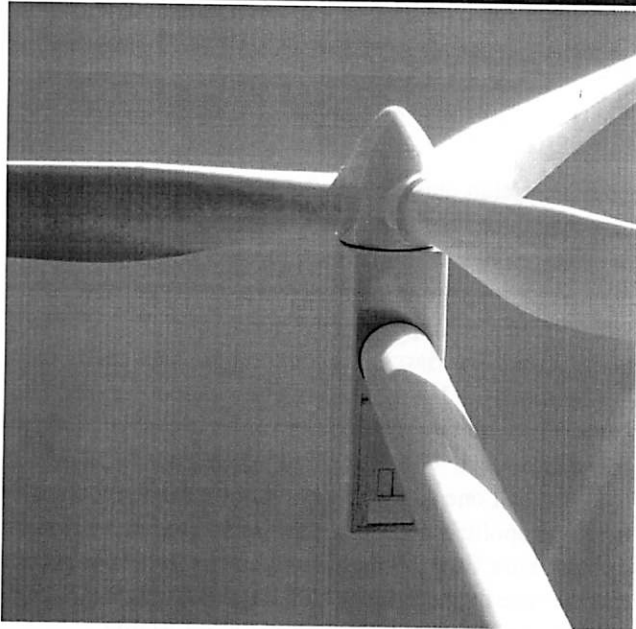
But we can take some satisfaction from knowing that many of the electrons zooming through our homes "popped" right here in Lempster. And if on a good day, the local wind farm is pumping out enough energy to power 25,000 homes, the ten percent of that energy that goes through the Co-op is more than enough to power our 630 homes. Count yourself in.



Hub is mounted to a nacelle
to a nacelle
where the particular electrons that power it at that moment originally came from.



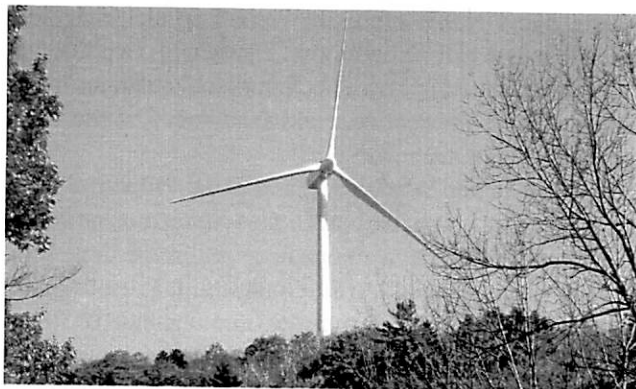
Sequence showing the last turbine receiving its final blade. The construction is then complete.
Viewed from Library steps in November 2008



Surreptitious close-up of a new resident
on Lempster Mountain



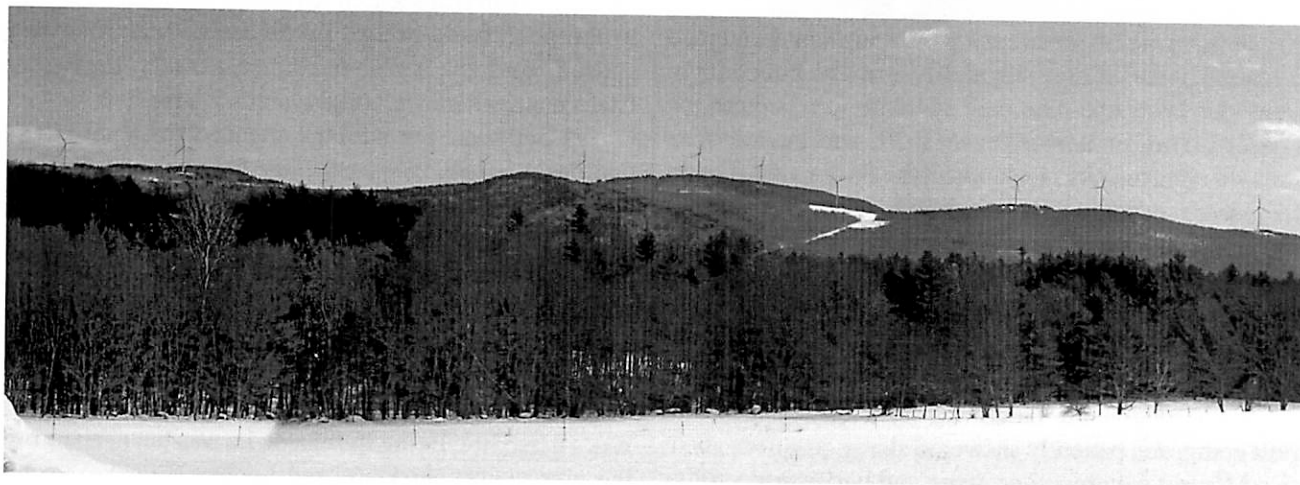
From Mount Sunapee on Columbus Day, 10 turbines
one without blades yet (center, farthest back in distance)



Very legal view of same resident,
our most southern windmill



Along the access road, a windy day in December
bends the blades with its force



View on February 21, 2009 from Grenier Farm of all 12 wind turbines, in place and operational